

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 1. (Original) A method for use in packet communication, comprising the steps of:
2 encapsulating contents of a first Ethernet packet received at a port of a switch of a
3 metropolitan area Ethernet network in at least one encapsulating Ethernet packet that is to
4 traverse said metropolitan area Ethernet network; and
5 assigning the source address of said at least one encapsulating Ethernet packet to
6 be the address of said port at which said packet was received.

1 2. (Original) The invention as defined in claim 1 wherein said contents of said
2 first Ethernet packet is the entirety of said first Ethernet packet.

1 3. (Original) The invention as defined in claim 1 wherein said contents of said
2 first Ethernet packet is a portion of said first Ethernet packet.

1 4. (Original) The invention as defined in claim 1 wherein said encapsulating and
2 assigning steps are performed in an Ethernet switch of said metropolitan area Ethernet
3 network at an interface between said metropolitan area Ethernet network and another
4 Ethernet network.

1 5. (Original) The invention as defined in claim 1 wherein said encapsulating and
2 assigning steps are performed in an Ethernet switch of said metropolitan area Ethernet
3 network at an interface between said metropolitan area Ethernet network, which serves a
4 plurality of entities, and another Ethernet network, which serves only a single one of said
5 entities.

1 6. (Original) The invention as defined in claim 1 further including the step of
2 incorporating in said at least one encapsulating Ethernet packet an entity identifier which
3 is a function of said address of said port at which said packet was received.

1 7. (Original) The invention as defined in claim 6 wherein said entity identifier is
2 a virtual local area network (VLAN) tag.

1 8. (Original) The invention as defined in claim 1 wherein said encapsulating step
2 is performed so that a first portion of said first Ethernet packet is encapsulated in said at
3 least one encapsulating Ethernet packet and a second portion of said first Ethernet packet
4 is encapsulated in at least a second encapsulating Ethernet packet that is to traverse said
5 metropolitan area Ethernet network, the method further including the step of:
6 assigning the source address of said second encapsulating Ethernet packet to be
7 the address of said port at which said packet was received.

1 9. (Original) The invention as defined in claim 1 further including the step of:
2 assigning said at least one encapsulating packet a destination address as a function
3 of a stored association between the destination address of said first Ethernet packet and a
4 destination address for said metropolitan area Ethernet network of a previously received
5 Ethernet packet from said metropolitan area Ethernet network.

1 10. (Original) The invention as defined in claim 1 further including the step of:
2 assigning said at least one encapsulating packet a destination address as a function
3 of a stored association between the destination address of said first Ethernet packet and a
4 port of said metropolitan area Ethernet network.

1 11. (Original) The invention as defined in claim 1 further including the step of:
2 assigning said at least one encapsulating packet as at least one type from a set of
3 types consisting of a broadcast packet and a multicast packet.

1 12. (Original) The invention as defined in claim 11 wherein said step of assigning
2 said at least one encapsulating packet as a broadcast packet is performed when said first
3 packet is a broadcast or a multicast packet.

1 13. (Original) The invention as defined in claim 11 wherein said step of assigning
2 said at least one encapsulating packet as a broadcast packet is performed when there is no
3 stored association between the destination address of said first Ethernet packet and a
4 destination address for said metropolitan area Ethernet network of a previously received
5 packet from said metropolitan area Ethernet network.

1 14. (Original) The invention as defined in claim 1 wherein said metropolitan area
2 Ethernet network supports virtual local area network (VLAN) tags, and wherein said first
3 Ethernet packet is a broadcast or multicast packet, the method further comprising the step
4 of:

5 incorporating an entity identifier which is a function of said address of said port at
6 which said first Ethernet packet was received as a VLAN tag in said encapsulating
7 packet; and

8 assigning said at least one encapsulating packet as a broadcast packet.

1 15. (Original) An edge switch for use in a metropolitan area Ethernet network
2 having ports adapted to be coupled to at least one local area Ethernet network, said edge
3 switch comprising:

4 at least one port for receiving inner Ethernet packets from at least one of said local
5 area Ethernet networks and for transmitting inner Ethernet packets to said at least one of
6 said local area Ethernet networks, said at least one port being one of said ports of said
7 metropolitan area Ethernet network; and

8 a memory for establishing a correspondence association between addresses within
9 said at least one local area Ethernet network and addresses of said ports in said
10 metropolitan area Ethernet network.

1 16. (Original) The invention as defined in claim 15 wherein given an address of a
2 particular one of said addresses within said at least one local area Ethernet network said
3 switch is operable to retrieve said corresponding associated one of said addresses of said
4 ports in said metropolitan area Ethernet network.

1 17. (Original) The invention as defined in claim 15 wherein said memory further
2 associates a time stamp with each said associated address within said at least one local
3 area Ethernet network and address of said ports in said metropolitan area Ethernet
4 network.

1 18. (Original) The invention as defined in claim 15 further comprising a virtual
2 local area network (VLAN) tag marker.

1 19. (Original) The invention as defined in claim 15 further comprising a memory
2 associating said at least one port of said metropolitan area Ethernet with an entity.

1 20. (Original) The invention as defined in claim 15 further comprising a packet
2 stripper that extracts said inner Ethernet packets from encapsulating packets for
3 transmission to said local area Ethernet via said port.

1 21. (Original) The invention as defined in claim 15 further comprising:
2 a packet stripper that extracts at least a respective portion of a one of said inner
3 packets from at least two different encapsulating packets; and
4 an inner packet reassembler that receives said portions of said inner packet from
5 said packet stripper and reconstructs therefrom said one of said inner packets.

1 22. (Original) The invention as defined in claim 15 further comprising:
2 a memory writer for forming an association in said memory between a received
3 encapsulating packet's source address and a source address of an inner packet within said
4 encapsulating packet.

1 23. (Original) The invention as defined in claim 15 further comprising:
2 an encapsulator that embeds each of said received inner packets as a payload in at
3 least one encapsulating packet and places the address of said at least one port within the
4 source address field of said at least one encapsulating packet.

1 24. (Original) The invention as defined in claim 23 wherein said encapsulator
2 further places within the destination address field of said at least one encapsulating packet
3 an address of said metropolitan area Ethernet network that is associated within said
4 memory with a destination address of said inner packet.

1 25. (Original) The invention as defined in claim 23 wherein said encapsulator
2 further places within the destination address field of said at least one encapsulating packet
3 an indication that said encapsulating packet is a multicast packet when there is no address
4 of said metropolitan area Ethernet network associated within said memory with a
5 destination address of said inner packet.

1 26. (Original) The invention as defined in claim 23 wherein said encapsulator
2 further places within the destination address field of said at least one encapsulating packet
3 an indication that said encapsulating packet is a broadcast packet when there is no address
4 of said metropolitan area Ethernet network associated within said memory with a
5 destination address of said inner packet.

1 27. (Original) The invention as defined in claim 23 further comprising:
2 a virtual local area network (VLAN) tag marker; and
3 wherein said encapsulator further places within the destination address field of
4 said at least one encapsulating packet an indication that said encapsulating packet is a
5 broadcast packet when there is no address of said metropolitan area Ethernet network
6 associated within said memory with a destination address of said inner packet, and said
7 VLAN tag marker marks said encapsulating packet with a VLAN tag corresponding to an
8 entity associated with said port at which said inner packet was received.

1 28. (Original) Program code in computer readable form for use in processing
2 Ethernet packets, said computer readable program code comprising:
3 a module for encapsulating contents of a first packet received at a port of a
4 metropolitan area Ethernet network in at least one encapsulating Ethernet packet that is to
5 traverse said metropolitan area Ethernet network; and
6 a module for assigning the source address of said at least one encapsulating
7 Ethernet packet to be the address of said port at which said packet was received.

1 29. (Original) Apparatus for use in providing metropolitan area Ethernet service,
2 comprising:

3 means for encapsulating contents of a first packet received at a port of a
4 metropolitan area Ethernet network in at least one encapsulating Ethernet packet that is to
5 traverse said metropolitan area Ethernet network; and

6 means for assigning the source address of said at least one encapsulating Ethernet
7 packet to be the address of said port at which said packet was received.

1 30. (Original) A metropolitan area Ethernet network, said metropolitan area
2 Ethernet network comprising:

3 a plurality of edge switches, each of said edge switches being coupled to at least
4 one of a plurality of local area networks (LANs) at ports of said edge switches, wherein,
5 said edge switches encapsulate contents of inner packets received from said LANs into at
6 least one encapsulating Ethernet packet, said encapsulating Ethernet packet employing as
7 a source address an address of a one of said ports of said edge switch at which its
8 encapsulated inner packet was received; and

9 at least one core switch for switching said encapsulating packets;

10 wherein each of said plurality of edge switches is coupled to said at least one of
11 said core switches.

1 31. (Original) A method for use in packet communication, comprising the steps
2 of:

3 dividing a first Ethernet packet having a source address and a destination address
4 that is received at a port of a metropolitan area Ethernet network into first and second
5 parts, said first and second parts being taken from portions of said first Ethernet packet
6 exclusive of said source address and said destination address;

7 encapsulating said first and second parts in at least two respective encapsulating
8 Ethernet packets that are to traverse said metropolitan area Ethernet network;

9 assigning the source address of each of said encapsulating Ethernet packets to be
10 the address of said port at which said first packet was received;

11 assigning the source address of said first Ethernet packet as an inner source
12 address of each of said encapsulating packets; and

13 assigning the destination address of said first Ethernet packet as an inner
14 destination address of each of said encapsulating packets.

1 32. (Original) The invention as defined in claim 31 wherein first and second parts
2 taken from portions of said first packet are divided at a point that is a function of a
3 random number generator with a prescribed distribution.

1 33. (Original) A method for use in packet communication, comprising the steps
2 of:

3 receiving at least first and second encapsulating packets at an edge switch of a
4 metropolitan area Ethernet network, each of said encapsulating packets containing a
5 portion of data and/or cyclic redundancy check of a first inner packet that was fragmented
6 into at least first and second encapsulating packets for transport via said metropolitan area
7 Ethernet network; and

8 reassembling said first inner packet using said portions of data and/or cyclic
9 redundancy check contained within said first and second encapsulating packets.

1 34. (Original) The invention as defined in claim 33 wherein said first inner packet
2 contained a source address and a destination address and each of said encapsulating
3 packet further contains said source address and said destination address of said first inner
4 packet.

1 35. (Original) A method for use in packet communication comprising the steps of:
2 encapsulating a first portion of an inner Ethernet packet received at a port of a
3 metropolitan area Ethernet network into a first encapsulating Ethernet packet;

4 encapsulating a second portion of said inner Ethernet packet into a second
5 encapsulating Ethernet packet when said first encapsulating Ethernet packet would
6 exceed a prescribed Ethernet maximum packet length if said first portion was the entirety
7 of said inner Ethernet packet; and

8 assigning the source address of said first encapsulating Ethernet packet to be the
9 address of said port at which said packet was received.

1 36. (Original) The invention as defined in claim 35 further comprising the step of
2 assigning the source address of said second encapsulating Ethernet packet to be the
3 address of said port at which said packet was received when said first encapsulating
4 Ethernet packet would exceed said prescribed Ethernet maximum packet length if said
5 first portion was the entirety of said inner Ethernet packet.

6
1 37. (Original) The invention as defined in claim 36 further comprising the steps
2 of:
3 assigning a first sequence number to said first encapsulating Ethernet packet; and
4 assigning a second sequence number different from said first sequence number to
5 said first encapsulating Ethernet packet.

6
6 38. (Currently amended) The invention as defined in claim 36 wherein the length
7 of said first portion and the length of said portion is selected ~~is selected~~ so that said first
8 and second encapsulating packets conform to a prescribed distribution for lengths of
9 encapsulating packets.